Attorney Docket No.: SAM-0224DIV Application Serial No.: 10/690,105

Reply to Office Action of: July 14, 2004

Amendment Dated: October 14, 2004

Amendments to the Claims:

Please cancel claim 4.

The listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1. (Currently Amended) An alignment mark in which a plurality of at least one of mesa

and trench type unit marks are aligned with a predetermined gap therebetween in an underlying

layer to which a chemical mechanical polishing process is applied so that alignment signals are

formed during an alignment process, wherein:

each of the mesa and trench type the unit marks are formed by aligning in an inline type

includes at least one or more of mesa and trench patterns, the mesa or trench patterns within each

mesa or trench type unit mark being spaced sufficiently close together with a sufficiently close

pattern in order to prevent a dishing phenomenon during a chemical mechanical polishing

process;

the pattern pitch P' of the mesa and trench patterns formed within the mesa and trench

unit marks is given by the formula $P'=P/(2n'+1) \pm .05 \mu m$ (n': natural number); and

 $P\sin\theta = n\lambda$, P is pitch between the unit marks, λ is wavelength of a first probing beam

illuminating the unit marks, θ is diffraction angle, n' is the number of mesa or trench patterns, n

is diffraction order of the first probing beam illuminating the unit marks, \(\lambda\) is wavelength of a

second probing beam for illuminating the mesa or trench patterns, and 2n'+1 is diffraction order

by the wavelength λ' of the second probing beam.

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2. (Original) The alignment mark as claimed in claim 1, wherein the mesa pattern is

formed with a predetermined pitch within the trench type of unit mark, and the trench pattern is

formed with a predetermined pitch within the mesa type of unit mark.

3. (Original) The alignment mark as claimed in claim 1, wherein the mesa patterns and

trench patterns are parallel to the lengthwise direction of the unit mark and aligned in a width

direction of the unit mark in line, when the unit mark is formed in a rectangular shape having a

predetermined length and width.

4. (Canceled)

5. (Currently Amended) The alignment mark as claimed in claim 4, wherein when the

pitch P between the unit marks is in the range of 7.8 to 8.2 µm, the pattern width t' and pattern

pitch P' are formed in the range of 2.65 - 2.67 \mu and in the range of 5 - 5.4 \mu m, respectively,

when the diffraction order 2n' +1 is 3, wherein the pattern width t' is the width of a single mesa

or trench in a mesa pattern or trench pattern, respectively.

6. (Currently Amended) The alignment mark as claimed in claim 4, wherein when the

pitch P between the unit marks is in the range of 7.8 to 8.2 µm, the pattern width t' and pattern

pitch P' of at least one of the mesa and trench patterns are formed in the range of 1.59 - 1.61 \mu m

and in the range of 3.1 - 3.3 µm, respectively, when the diffraction order 2n'+1 is 5, wherein the

pattern width t' is the width of a single mesa or trench in a mesa pattern or trench pattern,

respectively.

7. (Currently Amended) The alignment mark as claimed in claim 4, wherein when the

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pitch P between the unit marks is in the range of 7.8 to 8.2 µm, the pattern width t' and pattern pitch P' of at least one of the mesa and trench patterns are formed in the range of 1.13 - 1.15 µm and in the range of 2.27 - 2.29 µm in its size, respectively, when the diffraction order 2n'+1 is 7, wherein the pattern width t' is the width of a single mesa or trench in a mesa pattern or trench pattern, respectively.